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EXAMINER
BAUGH, APRIL L

ART UNIT	PAPER NUMBER
2141	

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14

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	09/459,815	SKENE ET AL.
	Examiner	Art Unit	
	April L Baugh	2141	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-60* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Response to Amendment

Applicant amended claims 1, 37, 38, 40, 50, 55, 59, and 60 therefore claims 1-60 are now

pending.

Response to Arguments

1.   Applicant's arguments with respect to claims 1, 37, 38, 40, 50, 55, 59, and 60 have been

considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claim 1-7, 16-22, 30-33, 37-39, 50, 51, 54, 55, 59, and 60 rejected under 35 U.S.C. 103(a)

as being unpatentable over US Patent No. 5,774,660 to Brendel et al. in view of Hu.

Regarding claim 1, Brendel et al. teaches a method for balancing a load on a plurality of

servers that provide access to resources associated with a domain name, comprising: (a)

receiving a request for access to resources associated with the domain name; (b) determining the

load for each of a plurality of servers that provide access to resources associated with the domain

name and selecting one of the plurality of servers to provide the access, the selection of the

server being based on a determination for optimally balancing the load on the plurality of

servers; (column 6, lines 20-26) and (c) based on the determination for optimally balancing the

load, resolving an Internet protocol (ip) address of the selected server so that the accessing of

resources associated with the domain name at the resolved ip address of the selected server will

cause the load to be optimally balanced on the plurality of servers on a network (column 5, lines

33-40 and column 7, lines 19-23 of Brendel et al.).

Brendel et al. does not teach determining the load out of band for each of a plurality of

servers. Hu teaches determining the load out of band for each of a plurality of servers (column 2,

line 15-16 of Hu). Therefore it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify the WWW server for resource based load balancing of

Brendel et al. by determining the load out of band because this allows the system to respond

quicker to a client request.

Referring claim 37, Brendel et al. teaches a system for balancing a load on a plurality of

virtual servers that provide access to resources associated with a domain name (column 6, lines

56-57 and column 7, lines 15-16 of Brendel et al), comprising: (a) a memory for storing logical

instructions; and (b) a processor for executing the logical instructions stored in the memory, the

execution of the logical instructions causing functions to be performed (column 7, lines 51-52

and column 12, line 16 of Brendel et al.), including: (i) receiving a request for access to

resources associated with the domain name; (ii) determining the load for each of a plurality of

virtual servers that provide access to resources associated with the domain name and selecting

one of the plurality of virtual servers to provide the access, the selection of the virtual server

being based on a determination for optimally balancing the load on the plurality of virtual servers

(column 6, lines 56-57 of Brendel et al.); and (iii) based on the determination for optimally

balancing the load, resolving an Internet protocol (ip) address of the selected virtual server so

that the accessing of resources associated with the domain name at the resolved ip address of the

selected virtual server by the client will optimally balance the load on all of the virtual servers on

a network (column 2, lines 29-32 and column 5, lies 33-40 and column 7, lines 19-23 of Brendel

et al.).

Brendel et al. does not teach determining the load out of band for each of a plurality of

servers. Hu teaches determining the load out of band for each of a plurality of servers (column 2,

line 15-16 of Hu). Therefore it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify the WWW server for resource based load balancing of

Brendel et al. by determining the load out of band because this allows the system to respond

quicker to a client request.

Regarding claim 38, Brendel et al. teaches the method for balancing the load on a

plurality of virtual servers that provide access to resources associated with a domain name

(column 6, lines 56-57 and column 7, lines 15-16 of Brendel et al), comprising: (a) receiving a

request from a client for access to resources associated with the domain name; (b) querying a

local Domain Name System (DNS) to provide the Internet protocol (ip) address associated with

the domain name (column 2, lines 29-32 of Brendel et al.); (c) when the ip address is not present

at the local DNS, querying a primary DNS to resolve the ip address associated with the domain

name; (d) when the primary DNS determines the domain name is delegated to a EDNS system,

referring the local DNS to the EDNS system to resolve the ip address associated with the domain

name (column 2, lines 27-28 of Brendel et al.); and (e) employing the EDNS system to balance

the load on a plurality of virtual servers that provide access to resources associated with the

domain name by selecting one of the plurality of virtual servers that optimally balances the load

(column 6, lines 56-57 of Brendel et al.), the EDNS system resolving the ip address of the

selected virtual server for the domain name and providing the ip address to the client, so that the

client will access resources associated with the domain name at the resolved ip address of the

selected virtual server(column 2, lines 29-32 of Brendel et al.).

Brendel et al. does not teach determining the load out of band for each of a plurality of

servers. Hu teaches the load being determined out of band (column 2, line 15-16 of Hu).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the WWW server for resource based load balancing of Brendel et al. by

determining the load out of band because this allows the system to respond quicker to a client

request.

Regarding claim 50, Brendel et al. teaches an apparatus for balancing a load on a

plurality of virtual servers that provide access to a resource associated with a domain name

(column 6, lines 56-57 and column 7, lines 15-16 of Brendel et al.), comprising: (a) a memory

for storing logical instructions; (b) a transceiver for communicating over a network; (c) a

processor for executing the logical instructions stored in the memory, the execution of the logical

instructions causing actions to be performed (column 7, lines 51-52 and column 12, line 16 of

Brendel et al.), including: (i) receiving a request from a client for access to a resource associated

with the domain name; (ii) collecting metric information related to communication between at

least one local DNS that is associated with the client and at least one of the plurality of virtual

servers, wherein the metric information is employable for determining the load on at least one of

the plurality of virtual servers (column 2, lines 27-28 and column 6, lines 56-57 and column 23,

line 51 of Brendel et al.); (iii) determining the load for each of a plurality of virtual servers that

provide access to the resource associated with the domain name and selecting one of the plurality

of virtual servers to provide the access, the selection of the virtual server being based on a

determination for balancing the load on the plurality of virtual servers; and (iv) resolving an

Internet protocol (IP) address of the selected virtual server, wherein a subsequent accessing of

the resources associated with the domain name at the resolved IP address of the selected virtual

server by the client will cause the load to be balanced on the plurality of virtual servers (column

6, lines 20-26 and column 7, lines 19-23 of Brendel et al.).

Brendel et al. does not teach collecting metric information out of band. Hu teaches

collecting metric information out of band (column 2, line 15-16 of Hu). Therefore it would have

been obvious to one of ordinary skill in the art at the time the invention was made to modify the

WWW server for resource based load balancing of Brendel et al. by collecting metric

information out of band because this allows the system to respond quicker to a client request.

Regarding claim 55, Brendel et al. teaches a system for balancing a load on a plurality of

virtual servers that provide access to a resource associated with a domain name (column 6, lines

56-57 and column 7, lines 15-16 of Brendel et al.), comprising: (a) a server array controller that

balances the load on a plurality of node servers, wherein the server array controller generates

each virtual server based on at least a portion of the capacity of at least one of the plurality of

node servers; and (column 2, lines 18-28 of Brendel et al.) (b) an EDNS that provides for

balancing the load on the plurality of virtual servers, the EDNS performs actions, including: (i)

collecting metric information related to the plurality of virtual servers, wherein the metric

information is employable for determining the load on at least one of the plurality of virtual

servers (column 2, lines 27-28 and column 6, lines 56-57 and column 23, line 51 of Brendel et

al.); (ii) determining the load for each of the plurality of virtual servers that provides access to

the resource associated with the domain name and selecting one of the plurality of virtual servers

to provide the access, the selection of the virtual server being based on a determination for

balancing the load on the plurality of virtual servers and including the resolved Internet protocol

(IP) address of the selected virtual server; and (iii) in response to a request from a client for

access to the resource associated with the domain name, enabling the resolved IP address of the

selected virtual server to be provided to the client, wherein a subsequent and separate accessing

of the resource associated with the domain name at the resolved IP address of the selected virtual

server by the client causes the load to be balanced on the plurality of virtual servers (column 6,

lines 20-26 and column 7, lines 19-23 of Brendel et al.).

Brendel et al. does not teach collecting metric information out of band. Hu teaches

collecting metric information out of band (column 2, line 15-16 of Hu). Therefore it would have

been obvious to one of ordinary skill in the art at the time the invention was made to modify the

WWW server for resource based load balancing of Brendel et al. by collecting metric

information out of band because this allows the system to respond quicker to a client request.

Referring to claim 59, Brendel et al. teaches an agent for balancing load on a plurality of

virtual servers that provide access to a resource associated with a domain name (column 6, lines

56-57 and column 7, lines 15-16 of Brendel et al.), wherein the agent performs actions,

comprising: (a) collecting metric information related to at least one of the plurality of virtual

servers, wherein the metric information is employable for determining the load on at least one of

the plurality of virtual servers (column 2, lines 27-28 and column 6, lines 56-57 and column 23,

line 51 of Brendel et al.); (b) providing the metric information to an EDNS, (c) enabling the

EDNS to employ the metric information to determine the load for each of the plurality of virtual

servers that provide access to the resource associated with the domain name and select one of the

plurality of virtual servers to provide the access, the selection of the virtual server being based on

a determination for balancing the load on the plurality of virtual servers and including the

resolved Internet protocol (IP) address of the selected virtual server; and (d) in response to a

request from a client to access the resource associated with the domain name, enabling the EDNS

to provide the resolved IP address of the selected virtual server, and wherein a subsequent and

separate accessing of the resource associated with the domain name at the resolved IP address of

the selected virtual server by the client causes the load to be balanced on the plurality of virtual

servers (column 6, lines 20-26 and column 7, lines 19-23 of Brendel et al.).

Brendel et al. does not teach collecting metric information out of band. Hu teaches

collecting metric information out of band (column 2, line 15-16 of Hu). Therefore it would have

been obvious to one of ordinary skill in the art at the time the invention was made to modify the

WWW server for resource based load balancing of Brendel et al. by collecting metric

information out of band because this allows the system to respond quicker to a client request.

Regarding claim 60, Brendel et al. teaches an apparatus for balancing a load on a

plurality of virtual servers that provide access to a resource associated with a domain name

(column 6, lines 56-57 and column 7, lines 15-16 of Brendel et al.), comprising: (a) means for

receiving a request from a client for access to a resource associated with a domain name; (b)

means for collecting metric information related to communication between at least one local

DNS that is associated with the client and at least one of the plurality of virtual servers, wherein

the metric information is employable for determining the load on at least one of the plurality of virtual servers (column 2, lines 27-28 and column 6, lines 56-57 and column 23, line 51 of Brendel et al.); (c) means for determining the load for each of a plurality of virtual servers that provide access to the resource associated with the domain name and selecting one of the plurality of virtual servers to provide the access, the selection of the virtual server being based on a determination for balancing the load on the plurality of virtual servers; and (d) means for resolving an Internet protocol (IP) address of the selected virtual server, wherein a subsequent accessing of the resource associated with the domain name at the resolved IP address of the selected virtual server by the client will cause the load to be balanced on the plurality of virtual servers (column 6, lines 20-26 and column 7, lines 19-23 of Brendel et al.).

Brendel et al. does not teach collecting metric information out of band. Hu teaches collecting metric information out of band (column 2, line 15-16 of Hu). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the WWW server for resource based load balancing of Brendel et al. by collecting metric information out of band because this allows the system to respond quicker to a client request.

Referring to claim 2, Brendel et al. teaches the method of Claim 1, further comprises querying a local Domain Name System (DNS) to provide the ip address associated with the domain name (column 2, lines 29-32 of Brendel et al.).

Regarding claim 3, Brendel et al. teaches the method of Claim 2, wherein when the ip address is not present at the local DNS, querying a primary DNS to resolve the ip address associated with the domain name (column 2, lines 27-28 of Brendel et al.).

Referring to claim 4, Brendel et al. teaches the method of Claim 3, wherein when the primary DNS determines the domain name is delegated to a EDNS, further comprising referring the local DNS to the EDNS to resolve the ip address for the selected server, the EDNS employs at least one of a plurality of load balancing determinations to select one of the plurality of servers and resolve the ip address for the selected server (column 2, lines 20-28 of Brendel et al.).

Regarding claim 5, Brendel et al. teaches the method of Claim 4, wherein the EDNS includes the primary DNS (column 2, lines 20-23 of Brendel et al.).

Referring to claim 6, Brendel et al. teaches the method of Claim 4, wherein the EDNS includes a secondary DNS (column 2, lines 27-28 of Brendel et al.).

Regarding claim 7, Brendel et al. teaches the method of Claim 4, wherein the EDNS is a primary EDNS, the primary EDNS collecting metric information employed by the selected load balancing determination to select the server to provide access to the resources associated with the domain name (column 6, lines 53-58 of Brendel et al.).

Referring to claim 16, Brendel et al. teaches the method of Claim 4, further comprising a server array controller for managing access to at least one of the plurality of servers, the server array controller being in communication with the EDNS (column 2, lines 18-28 of Brendel et al.).

Regarding claim 17, Brendel et al. teaches the method of Claim 16, wherein the server array controller is a BIGIIP server array controller (column 10, lines 9-13 of Brendel et al.).

Referring to claim 18, Brendel et al. teaches the method of Claim 1, wherein the selected server is a stand-alone server (column 20, lines 65-67 of Brendel et al.).

Regarding claim 19, Brendel et al. teaches the method of Claim 4, further comprising an agent program that collects the metric information and communicates the collected metric information to the EDNS when the EDNS is not resolving the ip address for the resources associated with the domain name request (column 2, lines 27-28 and column 6, lines 56-57 and column 23, line 51 of Brendel et al.).

Regarding claim 20, Brendel et al. teaches the method of Claim 1, wherein the network comprises a wide area network, Internet and intranet (column 8, lines 18-19 and column 16, lines 36-37 of Brendel et al.).

Referring to claim 21, Brendel et al. teaches the method of Claim 4, further comprising a wide ip that maps the domain name to at least one server, the wide ip being employed when the primary DNS is separate from the EDNS (column 2, lines 36-43 of Brendel et al.).

Regarding claim 22, Brendel et al. teaches the method of Claim 21, wherein the wide ip maps the domain name to one of the plurality of load balancing determinations (column 3, lines 2-6 of Brendel et al.).

Referring to claim 30, Brendel et al. teaches the method of Claim 22, wherein the statistics for the wide ip include weighting values for the servers managed by a particular server array controller (column 1, line 9 of Brendel et al.), weighting values for the servers managed by another Host machine (column 1, lines 37-39 of Brendel et al.), the number of successful domain name resolutions, the number of unsuccessful name resolutions (column 2, lines 27-28 of Brendel et al.), the load balancing modes used for the pool of servers managed by each server array controller, the load balancing modes used for the pool of servers managed by each Host machine (column 3, lines 5-6 of Brendel et al.), the number of servers managed by each server

array controller that are used to load balance a specified wide ip, and the number of servers

managed by each host machine that are used to load balance the specified wide ip (column 3,

lines 31-32 of Brendel et al.).

Regarding claim 31, Brendel et al. teaches the method of Claim 4, wherein the EDNS

employs an iQuery protocol to communicate the metric information from the agent program to

the EDNS (column 2, lines 27-28 and column 10, lines 21-24 and column 23, line 51 of Brendel

et al.).

Referring to claim 32, Brendel et al. teaches the method of Claim 1, wherein the EDNS is

a 3DNS server (column 2, lines 27-28 of Brendel et al.).

Regarding claim 33, Brendel et al. teaches the method of Claim 1, wherein at least a

portion of the plurality of servers are virtual servers (column 7, lines 15-16 of Brendel et al.).

Referring to claim 39, Brendel et al. teaches a computer readable medium having

computer executable instructions for performing the method recited in Claims 1, 4, 19 or 23

(column 23, line 51 of Brendel et al.).

Regarding claim 51, Brendel et al. teaches the apparatus of claim 50, wherein at least a

part of the collected metric information is employable in the determination of the selected virtual

server for balancing the load on the plurality of virtual servers (column 2, lines 27-28 and

column 6, lines 56-57 and column 23, line 51 of Brendel et al.).

Referring to claim 54, Brendel et al. teaches the apparatus of claim 50, wherein the

performed actions further comprise enabling an agent disposed on a node server to communicate

metric information to at least one of a virtual server, server array controller, and an EDNS

(column 1, line 9 and column 2, lines 27-28 and column 6, lines 56-57 and column 23, line 51 of

Brendel et al.).

1.   Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No.

5,774,660 to Brendel et al in view of Hu as applied to claim 1-7, 16-22, 30-33, and 37 above and

further in view of Joffe et al. and Guenthner et al.

Regarding claim 8, Brendel et al. in view of Hu teaches the method of Claim 4, wherein

selecting one of the plurality of servers that will optimally balance the load and round robin

(column 3, lines 5-6 of Brendel et al.).

Brendel et al. in view of Hu does not teach static load balancing determinations being

selectable and including random, static ratio, global availability and topology. Joffe et al. teaches

further comprises choosing the server based on one of a plurality of static load balancing

determinations for each server (column 2, lines 63-65 of Joffe et al.), the plurality of static load

balancing determinations being selectable and including global availability and topology

(column 3, lines 9-10 of Joffe et al.). Therefore it would have been obvious to one having

ordinary skill in the art at the time the invention was made to further modify the WWW server

for resource based load balancing of Brendel et al. in view of Hu by choosing the server based on

one of a plurality of static load balancing determinations for each server because this allows the

system to balance the load throughout the network.

Brendel et al. in view of Hu and further in view of Joffe et al. does not teach the

plurality of static load balancing determinations being selectable and including random.

Guenthner et al. teaches the plurality of static load balancing determinations being selectable and

including random (column 2, lines 24-25 of Guenthner et al.). Therefore it would have been

obvious to one having ordinary skill in the art at the time the invention was made to further

modify the WWW server for resource based load balancing of Brendel et al. in view of Hu and

further in view of Joffe et al. by plurality of static load balancing determinations being selectable

and including random because this is a technique for balancing the load in a network.

2.   Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No.

5,774,660 to Brendel et al in view of Hu as applied to claim 1-7, 16-22, 30-33, and 37 above and

further in view of Shah et al. and Joffe et al.

Regarding claim 9, Brendel et al. teaches the method of Claim 4 wherein selecting one of

the plurality of servers that will optimally balance the load.

Brendel et al. does not teach choosing the server based on one of a plurality of dynamic

load balancing determinations for each server. Hu teaches further comprises choosing the server

based on one of a plurality of dynamic load balancing determinations for each server (column 2,

lines 50-52 of Hu), the dynamic load balancing determinations being selectable and including

completion rate (column 9, lines 20-22 of Hu). Therefore it would have been obvious to one

having ordinary skill in the art at the time the invention was made to further modify the WWW

server for resource based load balancing of Brendel et al. by choosing the server based on one of

a plurality of dynamic load balancing determinations for each server because this is a way of

balancing the load in a network based on the current load information.

Brendel et al. in view of Hu does not teach least connections, packet rate, hops, or round

trip time. Shah et al. teaches hops (column 2, line 28 of Shah et al.), round trip times (column 1,

lines 9-10 of Shah et al.), quality of service and dynamic ratio. Therefore it would have been

obvious to one having ordinary skill in the art at the time the invention was made to further

modify the WWW server for resource based load balancing of Brendel et al. in view of Hu by having least connections, packet rate, hops, or round trip time be used to load balance because this are techniques for dynamically load balancing a network.

Brendel et al. in view of Hu and further in view of Shah et al. does not teach least connections and packet rate. Joffe et al. teaches least connections (column 3, line 67 of Joffe et al.), packet rate (column 4, line 3 of Joffe et al.). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load balancing of Brendel et al. in view of Hu and further in view of Shah et al. by least connections and packet rate being used to balance a network because this are techniques for dynamically load balancing a network.

3.   Claim 10-12 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,774,660 to Brendel et al in view of Hu as applied to claim 1-7, 16-22, 30-33, and 37 above and further in view of Guenthner et al.

Regarding claim 10, Brendel et al. in view of Hu teaches the method of Claim 4, further comprising selecting one of the plurality of load balancing determinations.

Brendel et al. in view of Hu does not teach of time stamps. Guenthner et al. teaches selecting one of the plurality of load balancing determinations as a primary load balancing determination, the primary load balancing determination being used to select the server when a time stamp is not expired, the time stamp being associated with metric information used by the primary load balancing determination (column 1, lines 50-52 and column 2, lines 44-45 of Guenthner et al.). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load

balancing of Brendel et al in view of Hu by primary load balancing determination being used to select the server when a time stamp is not expired because this allows the system to choose a primary way of balancing the network.

Referring to claim 11, Brendel et al. in view of Hu teaches the method of Claim 10, further comprising selecting one of the plurality of load balancing determinations.

Brendel et al. in view of Hu does not teach of time stamps. Guenthner et al. teaches selecting one of the plurality of load balancing determinations as an alternate load balancing determination, the alternate load balancing determination being employed to select the server when the time stamp associated with the metric information used by the primary load balancing determination is expired, another time stamp being associated with metric information employed by the alternate load balancing determination (column 1, lines 50-52 and 58-62 and column 2, lines 44-45 of Guenthner et al.). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load balancing of Brendel et al. in view of Hu by alternate load balancing determination being employed to select the server when the time stamp associated with the metric information used by the primary load balancing determination is expired because if the primary method is not successful then the system is able to use an alternate method to balance the network.

Regarding claim 12, Brendel et al. in view of Hu teaches the method of Claim 11, further comprising selecting one of the plurality of load balancing determinations.

Brendel et al. in view of Hu does not teach of time stamps. Guenthner et al. teaches selecting one of the plurality of load balancing determinations as a fallback load balancing

determination, the fallback load balancing determination being employed to select the server

when the time stamp associated with metric information used by the primary load balancing

determination and the other time stamp associated with metric information employed by the

alternate load balancing determination are expired (column 1, lines 50-52 and 58-62 and column

2,lines 44-45 of Guenthner et al.). Therefore it would have been obvious to one having ordinary

skill in the art at the time the invention was made to further modify the WWW server for

resource based load balancing of Brendel et al. in view of Hu by fallback load balancing

determination being employed to select the server when the time stamp associated with metric

information used by the primary load balancing determination and the other time stamp

associated with metric information employed by the alternate load balancing determination are

expired because if neither the primary or alternate method is not successful then the system is

able to use an fall back method to balance the network.

4.   Claim 13 and 53 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent

No. 5,774,660 to Brendel et al in view of Hu as applied to claim 1-7, 16-22, 30-33, and 37 above

and further in view of Shah et al.

Regarding claim 13, Brendel et al. teaches the method of Claim 7, further comprising a

plurality of EDNSs and each data center including at least one of a server array controller

(column 1, line 9 of Brendel et al.), host machine (column 1, lines 37-39 of Brendel et al.) and

EDNS (column 2, lines 27-28 of Brendel et al.).

Brendel et al. in view of Hu does not teach plurality of EDNSs that are separately

disposed at a plurality of geographically distributed data centers. Shah et al. teaches plurality of

EDNSs that are separately disposed at a plurality of geographically distributed data centers

(column 2, line 7 of Shah et al.). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load balancing of Brendel et al. in view of Hu by plurality of EDNSs that are separately disposed at a plurality of geographically distributed data centers because a DNS will be able to have quicker access to a EDNS.

Regarding claim 53, Brendel et al. in view of Hu teaches the apparatus of claim 50, wherein the metric information further comprises at least packet completion rate (column 9, lines 20-22 of Hu).

Brendel et al. in view of Hu does not teach hop count and round trip time. Shah et al. teaches wherein the metric information further comprises one of a hop count (column 2, line 28 of Shah et al.) and round trip time (column 1, lines 9-10 of Shah et al.). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load balancing of Brendel et al. in view of Hu by wherein the metric information further comprises one of a hop count and round trip time because this is important in determining how to best balance the load of the network.

5.   Claim 14-15 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,774,660 to Brendel et al in view of Hu and further in view of Shah et al. as applied to claim13 and 53 above, and further in view of Wallis.

Regarding claim 14, Brendel et al. in view of Hu and further in view of Shah et al. teaches the method of 13 and plurality of EDNSs.

Brendel et al. in view of Hu and further in view of Shah et al. does not teach employing the copy of metric information to select a particular server at that will optimally balance the load

for accessing resources. Wallis teaches wherein at least one of the plurality of EDNSs is a secondary EDNS, the secondary EDNS storing a copy of the metric information collected by the primary EDNS, the secondary EDNS employing the copy of metric information to select a particular server at that will optimally balance the load for accessing resources (column 3, lines 46-48 of Wallis). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load balancing of Brendel et al. in view of Hu and further in view of Shah et al. by employing the copy of metric information to select a particular server at that will optimally balance the load for accessing resources because this will help the system choose the most efficient server to balance the network.

Referring to claim 15, Brendel et al. in view of Hu further in view of Shah et al. teaches the method of 13 and plurality of EDNSs.

Brendel et al. in view of Hu and further in view of Shah et al. does not teach collecting metric information that is employed to select a particular server that will optimally balance the load for accessing resources. Wallis teaches wherein at least one of the plurality of EDNSs is a secondary EDNS, the secondary EDNS collecting metric information that is employed to select a particular server that will optimally balance the load for accessing resources (column 3, lines 46-48 of Wallis). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load balancing of Brendel et al. in view of Hu and further in view of Shah et al. by collecting metric information that is employed to select a particular server that will optimally balance the load for

accessing resources because this will help the system choose the most efficient server to balance the network.

6.   Claim 23-24 and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,774,660 to Brendel et al in view of Hu as applied to claim 1-7, 16-22, 30-33, and 37 above and further in view of Wallis.

Regarding claim 23, Brendel et al. in view of Hu teaches the method of Claim 4 and server array controller, host machine, server, path and wide ip configuration (column 1, line 9 and column 1, lines 37-39 and column 2, lines 27-28 of Brendel et al.).

Brendel et al. in view of Hu does not teach enabling statistics to be generated for a particular aspect of the network. Wallis teaches further comprising generating statistics from metric information collected by the EDNS and enabling statistics to be generated for a particular aspect of the network (column 3, lines 46-48 of Wallis). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load balancing of Brendel et al. in view of Hu by enabling statistics to be generated for a particular aspect of the network because this allows the system to best determine what servers need a particular type of static or dynamic load balancing performed.

Referring to claim 24, Brendel et al. in view of Hu teaches the method of Claim 23 and load balancing determination.

Brendel et al. in view of Hu does not teach generated statistics. Wallis teaches wherein the load balancing determination is at least partially based on the generated statistics (column 3, lines 50-54 of Wallis). Therefore it would have been obvious to one having ordinary skill in the

art at the time the invention was made to further modify the WWW server for resource based

load balancing of Brendel et al. in view of Hu by load balancing determination is at least

partially based on the generated statistics because this allows the system to best determine what

servers need a particular type of static or dynamic load balancing performed.

Regarding claim 29, Brendel et al. teaches the method of Claim 23, wherein the statistics

for the local DNS include a measure of how often a particular local DNS is used and the number

of times that the EDNS received a resolution request from the local DNS (column 2, lines 27-28

of Brendel et al.).

7.   Claim 25-26 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No.

5,774,660 to Brendel et al in view of Hu and further in view of Wallis as applied to claim 23, 24,

and 29 above, and further in view of Shah et al. and Paul et al.

Regarding claim 25, Brendel et al. in view of Hu and further in view of Wallis teaches

the method of Claim 23, and the statistics for the server array controller (column 3, lines 50-54

of Wallis).

Brendel et al. in view of Hu and further in view of Wallis does not teach statistics for the

server array controller. Shah et al. teaches wherein the statistics for the server array controller

include number of packets between the EDNS and the server array controller and the amount of

time the server array controller is active (column 2, lines 2-3 of Shah et al.). Therefore it would

have been obvious to one having ordinary skill in the art at the time the invention was made to

further modify the WWW server for resource based load balancing of Brendel et al. in view of

Hu and further in view of Wallis by having statistics for the server array controller because this

allows the system to best determine what servers need a particular type of static or dynamic load

balancing performed.

Brendel et al. in view of Hu and further in view Wallis and further in view of Shah et al.

does not teach delay and access rate. Paul et al. teaches the up versus down availability of the

server array controller, the total number of packets in and out of the server array controller, the

number of packets processed by the kernel per second, the number of servers managed by the

server array controller, the number of times data is refreshed, (column 2, lines 33, 37, and 52 of

Paul et al.). Therefore it would have been obvious to one having ordinary skill in the art at the

time the invention was made to further modify the WWW server for resource based load

balancing of Brendel et al. in view of Hu and further in view of Wallis and Shah et al. by

statistics for the server array controller including the up versus down availability of the server

array controller, the total number of packets in and out of the server array controller, the number

of packets processed by the kernel per second, the number of servers managed by the server

array controller, the number of times data is refreshed because this allows the system to best

determine what servers need a particular type of static or dynamic load balancing performed.

Regarding claim 26, Brendel et al. in view of Hu and further in view of Wallis teaches

the method of Claim 23 and host machine.

Brendel et al. in view of Hu and further in view of Wallis does not teach the statistics for

the host machine. Shah et al. teaches wherein the statistics for the host machine include the

number of servers managed by the host machine (column 2, lines 2-3 of Shah et al.). Therefore it

would have been obvious to one having ordinary skill in the art at the time the invention was

made to further modify the WWW server for resource based load balancing of Brendel et al. in

view of Hu and further in view of Wallis by number of times a particular host machine was

chosen by a wide ip for load balancing and the number of times data is refreshed because this

allows the system to best determine what servers need a particular type of static or dynamic load

balancing performed.

Brendel et al. in view of Hu and further in view of Wallis and Shah et al. does not teach

access rate or delay. Paul et al. teaches number of times a particular host machine was chosen by

a wide ip for load balancing and the number of times data is refreshed (column 2, lines 33, 37,

and 52 of Paul et al.). Therefore it would have been obvious to one having ordinary skill in the

art at the time the invention was made to further modify the WWW server for resource based

load balancing of Brendel et al. in view of Hu and further in view of Wallis and Shah et al. by

number of times a particular host machine was chosen by a wide ip for load balancing and the

number of times data is refreshed because this allows the system to best determine what servers

need a particular type of static or dynamic load balancing performed.

8.   Claim 27 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No.

5,774,660 to Brendel et al in view of Hu and further in view of Wallis and Shah et al. and Paul et

al. as applied to claim 25 and 26 above and further in view of Joffe et al.

Regarding claim 27, Brendel et al in view of Hu and further in view of Wallis and Shah

et al. and Paul et al. teaches the method of Claim 23, wherein the statistics for the server include

the number of times a particular machine was chosen by a wide ip for load balancing, the number

of times data is refreshed, and the up versus down availability of the server (column 2, lines 2-3

of Shah et al. and column 2, lines 33, 37, and 52 of Paul et al.)

Brendel et al in view of Hu and further in view of Wallis and Shah et al. and Paul et al.

does not teach of connections. Joffe et al. teaches the number of connections that are handled by

the server (column 3, line 67 of Joffe et al.). Therefore it would have been obvious to one having

ordinary skill in the art at the time the invention was made to further modify the WWW server

for resource based load balancing of Brendel et al in view of Wallis and further in view of Shah

et al. and Paul et al. by having statistics for the server include the number of connections that are

handled by the server because this is important in determining how to best balance the load of

the network.

9.   Claim 28 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No.

5,774,660 to Brendel et al in view of Hu and further in view of Wallis as applied to claim 23, 24,

and 29 above and further in view of Shah et al.

Regarding claim 28, Brendel et al. in view of Hu and further in view of Wallis teaches

the method of Claim 23 and DNS and the packet completion rate between the server array

controller and the local DNS, (column 9, lines 20-21 of Hu).

Brendel et al. in view of Hu and further in view Wallis does not teach of statistics for the

path. Shah et al. teaches wherein the statistics for the path include the average round trip time

(RTT) for transactions between the server array controller and a local DNS, the number of times

a specified path is chosen, the number of times that the EDNS has received data about the

specified path and the number of hops between routers for a transaction between the local DNS

and the selected server (column 1, lines 9-10 and column 2, line 29 of Shah et al.) Therefore it

would have been obvious to one having ordinary skill in the art at the time the invention was

made to further modify the WWW server for resource based load balancing of Brendel et al. in

view of Hu and further in view of Wallis by having statistics for the path because this is

important in determining how to best balance the load of the network.

10.   Claim 34 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No.

5,774,660 to Brendel et al in view of Hu and further in view of Wallis and Shah et al. as applied

to claim 28 above and further in view Joffe et al.

Regarding claim 34, Brendel et al in view of Hu and Wallis and further in view of Shah

et al. teaches the method of Claim 24, wherein the generated statistics include a quality of service

value that is related to the sum of separate portions of collected metric information, including

packet rate, round trip time, hops, virtual server capacity, and completion rate (column 1, lines 9-

10 and column 2, line 29 of Shah et al. and column 9, lines 20-21 of Hu).

Brendel et al in view of Hu and Wallis and further in view of Shah et al. does not teach

topology. Joffe et al. teaches the generated statistics include a quality of service value that is

related to the sum of separate portions of collected metric information, including topology

(column 3, lines 9-10 of Joffe et al.). Therefore it would have been obvious to one having

ordinary skill in the art at the time the invention was made to further modify the WWW server

for resource based load balancing of Brendel et al in view of Hu and Wallis and further in view

of Shah et al. by generated statistics including a quality of service value that is related to the sum

of separate portions of collected metric information, including topology because quality of

service values and knowing the topology of the network help to balance the load in an efficient

manner.

11.   Claim 35-36 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No.

5,774,660 to Brendel et al in view of Hu and Wallis and further in view of Shah et al. and Joffe

et al. as applied to claim 34 above and further in view Paul et al.

Regarding claim 35, Brendel et al in view of Hu and Wallis and further in view of Shah

et al., and Joffe et al. teaches the method of Claim 34 and metric information (column 3, lines

47-48 Wallis).

Brendel et al in view of Hu and Wallis and further in view of Shah et al. and Joffe et al.

does not teach of determining the weight of metric information. Paul et al. teaches wherein each

portion of the metric information is separately multiplied by a selectable value that determines

the weight of that portion of the metric information in generating the quality of service value

(column 3, lines 47-48 Wallis and column 1, lines 24-25 of Paul et al.). Therefore it would have

been obvious to one having ordinary skill in the art at the time the invention was made to further

modify the WWW server for resource based load balancing of Brendel et al in view of Hu and

Wallis and further in view of Shah et al. and Joffe et al. by determining the weight of metric

information because this helps the system determine what metric information is more important

in balancing the network load.

Referring to claim 36, Brendel et al in view of Hu Wallis and further in view of Shah et

al. and Joffe et al. teaches the method of Claim 34 and statistics (column 3, lines 47-48 Wallis).

Brendel et al in view of Hu and Wallis and further in view of Shah et al. and Joffe et al.

does not teach of determining the weight of the metric information. Paul et al. teaches wherein

the generated statistics include a dynamic ratio value for each virtual server managed by a server

array controller, the dynamic ratio value being related to the quality of service value and having

selectable values for determining the weight of each portion of the metric information that is

employed to generate the dynamic ratio value (column 1, lines 24-25 of Paul et al.). Therefore it

would have been obvious to one having ordinary skill in the art at the time the invention was

made to further modify the WWW server for resource based load balancing of Brendel et al in

view of Hu and Wallis and further in view of Shah et al. and Joffe et al. by determining the

weight of the metric information because this helps the system determine what metric

information is more important in balancing the network load.

12.   Claim 40-43 and 45-48, 52, and 56-58 rejected under 35 U.S.C. 103(a) as being

unpatentable over US Patent No. 5,774,660 to Brendel et al. in view of Shah et al. and further in

view of Hu.

Regarding claim 40, Brendel et al. teaches an apparatus for balancing a load on a

plurality of virtual servers that provide access to a resource associated with a domain name

(column 6, lines 56-57 and column 7, lines 15-16 of Brendel et al.), comprising: (a) a memory

for storing logical instructions; (b) a transceiver for communicating over a network; (c) a

processor for executing the logical instructions stored in the memory, the execution of the logical

instructions causing actions to be performed (column 7, lines 51-52 and column 12, line 16 of

Brendel et al.), including: (i) receiving a request from a client for access to a resource associated

with the domain name; (ii) determining the load for each of a plurality of virtual servers that

provide access to the resource associated with the domain name and selecting one of the plurality

of virtual servers to provide access, the selection of the virtual server being based on a

determination for balancing the load on the plurality of virtual servers, and (iii) based on the

determination for balancing the load, resolving an Internet protocol (IP) address of the selected

virtual server, wherein a subsequent accessing of the resources associated with the domain name

at the resolved IP address of the selected virtual server by the client will cause the load to be

balanced on the plurality of virtual servers (column 5, lines 33-40 and column 6, lines 20-26 and

column 7, lines 19-23 of Brendel et al.).

Brendel et al. does not teach wherein at least one of the plurality of virtual servers is

disposed in a geographic area that is separate from another geographic area where at least one

other of the plurality of virtual servers is disposed. Shah et al. teaches wherein at least one of the

plurality of virtual servers is disposed in a geographic area that is separate from another

geographic area where at least one other of the plurality of virtual servers is disposed (column 2,

line 7 of Shah et al.). Therefore it would have been obvious to one of ordinary skill in the art at

the time the invention was made to further modify the WWW server for resource based load

balancing of Brendel et al. by wherein at least one of the plurality of virtual servers is disposed in

a geographic area that is separate from another geographic area where at least one other of the

plurality of virtual servers is disposed because the system is able to efficiently respond to the

request of clients in various geographic locations.

Brendel et al. in view of Shah et al. does not teach determining the load out of band for

each of a plurality of servers. Hu teaches determining the load out of band for each of a plurality

of virtual servers (column 2, line 15-16 of Hu). Therefore it would have been obvious to one of

ordinary skill in the art at the time the invention was made to modify the WWW server for

resource based load balancing of Brendel et al. in view of Shah et al. by determining the load out

of band because this allows the system to respond quicker to a client request.

Regarding claim 42, 52, and 56, Brendel et al. teaches the apparatus of claim 40, [50], and 55 [wherein the collected metric information is employed for balancing the load on the plurality of virtual servers] (column 6, lines 56-57 and column 7, lines 15-16 of Brendel et al.)

Brendel et al. does not teach wherein at least one of the plurality of virtual servers is disposed in one geographic area and at least another of the plurality of virtual servers is disposed in another geographic area. Shah et al. teaches wherein at least one of the plurality of virtual servers is disposed in one geographic area and at least another of the plurality of virtual servers is disposed in another geographic area (column 2, line 7 of Shah et al.).Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load balancing of Brendel et al. by wherein at least one of the plurality of virtual servers is disposed in one geographic area and at least another of the plurality of virtual servers is disposed in another geographic area because the system is able to efficiently respond to the request of clients in various geographic locations.

Regarding claim 47 and 57, Brendel et al. teaches the apparatus of claim 40 and 55, (column 6, lines 56-57 and column 7, lines 15-16 of Brendel et al.).

Brendel et al. does not teach wherein the performed actions further comprise enabling an EDNS disposed at one geographic location to make the load balancing determination by selecting a virtual server that is disposed at another geographic location. Shah et al. teaches wherein the performed actions further comprise enabling an EDNS disposed at one geographic location to make the load balancing determination by selecting a virtual server that is disposed at another geographic location (column 2, line 7 of Shah et al.). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify

the WWW server for resource based load balancing of Brendel et al. by wherein the performed actions further comprise enabling an EDNS disposed at one geographic location to make the load balancing determination by selecting a virtual server that is disposed at another geographic location because the system is able to efficiently respond to the request of clients in various geographic locations.

Regarding claim 48 and 58, Brendel et al. teaches the apparatus of claim 40 and 55, (column 6, lines 56-57 and column 7, lines 15-16 of Brendel et al.).

Brendel et al. does not teach wherein the performed actions further comprise enabling an EDNS disposed at one geographic location to employ another EDNS disposed at another geographic location to make the load balancing determination for selected server. Shah et al. teaches wherein the performed actions further comprise enabling an EDNS disposed at one geographic location to employ another EDNS disposed at another geographic location to make the load balancing determination for selected server (column 2, line 7 of Shah et al.). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the WWW server for resource based load balancing of Brendel et al. by wherein the performed actions further comprise enabling an EDNS disposed at one geographic location to employ another EDNS disposed at another geographic location to make the load balancing determination for selected server because the system is able to efficiently respond to the request of clients in various geographic locations.

Regarding claim 41, Brendel et al. teaches the apparatus of claim 40, where in the plurality of virtual servers are generated by at least on server array controller, and wherein at

least a portion of at least one node server is employed by each server array controller to generate

each virtual server (column 2, lines 18-28 of Brendel et al.).

Referring to claim 43, Brendel et al. teaches the apparatus of claim 40, wherein

determining the load for each virtual server, further comprises collecting metric information out

of band regarding each virtual server, and wherein the metric information is employed to

determine at least a portion of the balancing of the load for the plurality of the virtual servers in

advance of receiving the request (column 2, lines 27-28 and column 6, lines 56-57 and column

23, line 51 of Brendel et al.).

Regarding claim 45, Brendel et al. teaches the apparatus of claim 40, wherein the

performed actions further comprise enabling an agent to communicate metric information

regarding at least one of a server, virtual server, and a server array controller to at least one of

another server array controller, a primary EDNS, and a secondary EDNS (column 1, line 9 and

column 2, lines 27-28 and column 6, lines 56-57 and column 23, line 51 of Brendel et al.).

Referring to claim 46, Brendel et al. teaches the apparatus of claim 40, wherein the

performed actions further comprise enabling a UDP based protocol for communicating metric

information by at least one of an agent server array controller, primary EDNS, and secondary

EDNS (column 1, line 9 and column 2, lines 27-28 and column 6, lines 56-57 and column 23,

line 51 of Brendel et al.).

13.   Claim 44 and 49 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent

No. 5,774,660 to Brendel et al. in view of Shah et al. and Hu as applied to claim 40-43 and 45-

48, 52, and 56-58 above, and further in view of Joffe et al.

Referring to claim 44, Brendel et al. in view of Shah et al. and Hu teaches the apparatus

of claim 40, wherein the load balancing of the plurality of virtual servers, further comprises

enabling at least one geographic based load balancing determination, including hop count

(column 2, line 28 of Shah et al.

Brendel et al. in view of Shah et al. and Hu does not teach network topology, and

global availability. Joffe et al. teaches load balancing of the plurality of virtual servers, further

comprises enabling at least one geographic based load balancing determination, including,

network topology, and global availability (column 3, lines 9-10 of Joffe et al.). Therefore it

would have been obvious to one having ordinary skill in the art at the time the invention was

made to further modify the WWW server for resource based load balancing of Brendel et al. in

view of Shah et al. and Hu by teaches load balancing of the plurality of virtual servers, further

comprises enabling at least one geographic based load balancing determination, including,

network topology, and global availability because this allows the system to balance the load

throughout the network.

Referring to claim 49, Brendel et al. in view of Shah et al. and Hu teaches the apparatus

of claim 40, wherein the performed actions further comprises at least one of a plurality of load

balancing determinations, including selecting the virtual server based on hop counts between the

selected virtual server and a local DNS for the client (column 2, line 28 of Shah et al.), selecting

the virtual server based on round trip times between the selected virtual server and the local DNS

for the client (column 1, lines 9-10 of Shah et al.).

Brendel et al. in view of Shah et al. and Hu does not teach and selecting the virtual server

based on a topology of the network. Joffe et al. teaches and selecting the virtual server based on a

topology of the network (column 3, lines 9-10 of Joffe et al.). Therefore it would have been

obvious to one having ordinary skill in the art at the time the invention was made to further

modify the WWW server for resource based load balancing of Brendel et al. in view of Shah et

al. and Hu and selecting the virtual server based on a topology of the network because this allows

the system to balance the load throughout the network.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to April L Baugh whose telephone number is 703-305-5317. The

examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Rupal D Dharia can be reached on 703-305-4003. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-305-3900.

ALB

RUPAL DHARIA
SUPERVISORY PATENT EXAMINER